

# OPTIMIZING SERVICE LIFE FOR CONCRETE PUMPING

Hard and tough on wear,  
easy in the workshop

- Hardox® 500 pipe is perfect for pumping concrete
- Uniform hardness profile in the entire Hardox® 500 pipe
- Field test shows 4-5 times extended service life
- Compatible with Duroxite® 100 elbows



## TESTED AND APPROVED IN THE FIELD\*

PRODUCT	WEAR RATE mm/1,000 m <sup>3</sup> (inches/1,308 yd <sup>3</sup> )	RELATIVE SERVICE LIFE Mild steel = 1	SERVICE LIFE for a 4 mm (0.156") thick pipe, m <sup>3</sup> (yd <sup>3</sup> )
Mild steel pipe	0.6 (0.024)	1	5,000-10,000 (6,540-13,079)
Hardox® 500 pipe	0.12 (0.005)	4-5	30,000-40,000 (39,239-52,318)
Double-walled pipe	0.07 (0.003)	8-9	50,000-70,000 (65,398-91,557)

\*Hardox® 500 pipe was installed in two sections of a concrete pump truck to measure the wear rate. Particle fractions were 16-25 mm (0.630-0.984") and 25-32 mm (0.984-1.260"), rock type granite. In total, 17,000 m<sup>3</sup> (22,200 yd<sup>3</sup>) of concrete were pumped.

# CONCRETE RESULTS CONFIRMED

## HARDOX® 500 PIPE

SSAB has developed a range of wear-resistant steel pipes that are suitable for transporting wet concrete, soil, gravel, ore slurry and other abrasive materials.

Hardox® 500 pipe is a more cost-efficient alternative to products such as double-walled pipes. Despite its hardness, it can be welded, cut, milled and drilled using standard workshop practices.

## TESTED IN THE FIELD

A field test showed that Hardox® 500 pipe had 4-5 times longer service life than mild steel after pumping 17,000 m<sup>3</sup> (22,200 yd<sup>3</sup>) of concrete.

## UNIFORM PROPERTIES

Hardox® 500 pipe has a uniform hardness profile throughout the entire pipe. It is roll formed and plasma welded before quenching. This guarantees that the mechanical properties in the weld are the same as in the rest of the material.

## STOCK AVAILABILITY

Hardox® 500 pipe is available in diameters of 76.1, 88.9, 101.6, 108, 114.3, 121 and 133 mm (3", 3.5", 4", 4.25", 4.5", 4.76" and 5.24") with a wall thickness between 3.0 and 6.0 mm (0.118-0.236").

PROPERTIES	HARDOX® 500 PIPE
Outer diameter	76.1-133 mm (3-5.24")
Cross section	Circular
Wall thickness	3.0, 4.0, 5.0, 6.0 mm (0.118, 0.157, 0.197, 0.236")
Standard length	≥ 6000 mm (236.22")
Hardness	470-530 HBW
Dimension tolerances and testing	According to EN 10210
Typical carbon equivalent	CEV 0.62
Pressure testing without deformation	30 MPa (4.35 ksi)
Max. pressure test to burst	90 MPa (13.05 ksi)

## DUROXITE® 100 ELBOW

Combining Hardox® 500 pipe with Duroxite® 100 elbows creates a durable transport chain for concrete from the pump to the outlet.

One tested application showed no visible or measurable wear on the elbows after two years of use and more than 20,000 m<sup>3</sup> (26,159 yd<sup>3</sup>) of pumped concrete.

The hardfacing layer of chromium carbides inside a Duroxite® 100 elbow can withstand sliding wear from ballast at high velocities.

The seamless elbows have longitudinal welding beads to reduce turbulence. The hardfacing carbide layer has a guaranteed wear resistance down to 75% of its thickness.

PROPERTIES	DUROXITE® 100 ELBOW
Inner diameter	120-133 mm (4.72-5.24")
Cross section	Circular
Typical surface hardness	59-62 HRC (675-750 HV)
Pressure testing without deformation	10 MPa (1.45 ksi)
Max. pressure test to burst	28.5 MPa (4.13 ksi)
Chromium carbide thickness	4-8 mm (0.157-0.315")
Bending angle	30°, 45°, 90°
Base material	S235 steel pipe
ASTM G65 procedure A max weight loss	0.18 g (0.000397 lb)

## DUROXITE®

Duroxite® includes a wide range of chromium and complex carbide overlay products, such as plates, straight and curved pipes, pins, and welding consumables. [duroxite.com](http://duroxite.com)

## SSAB

SE-613 80 Oxelösund

Sweden

T +46 155 25 40 00

[hardoxstrenxtubesales@ssab.com](mailto:hardoxstrenxtubesales@ssab.com)

[hardox.com](http://hardox.com)

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